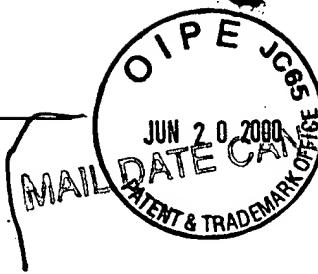


SEQUENCE LISTING

<110> Siani, Michael A.
Wilken, Jill
Simon, Reyna
Kent, Stephen B.H.



RECEIVED
JAN 28 2000

<120> Modular Protein Libraries and Methods of Preparation

<130> GRFN-020/01US

<140> US 09/144,838

<141> 1998-08-31

<150> US 60/057,620

<151> 1997-09-04

<160> 54

<170> PatentIn Ver. 2.1

<210> 1

<211> 81

<212> PRT

<213> Artificial Sequence

<220>

<223> Description of Artificial Sequence: Synthetic

<220>

<221> SITE

<222> (1)..(8)

<223> Xaa = Any Amino Acid

<220>

<221> SITE

<222> (10)

<223> Xaa = Any Amino Acid

<220>

<221> SITE

<222> (16)..(21)

<223> Xaa = Any Amino Acid

<220>

<221> SITE

<222> (28)..(29)

<223> Xaa = Any Amino Acid



*B
Cannell*
<220>
<221> SITE
<222> (35)
<223> Xaa = Any Amino Acid

<220>
<221> SITE
<222> (40)..(41)
<223> Xaa = Any Amino Acid

<220>
<221> SITE
<222> (46)..(50)
<223> Xaa = Any Amino Acid

<220>
<221> SITE
<222> (54)..(55)
<223> Xaa = Any Amino Acid

<220>
<221> SITE
<222> (57)..(59)
<223> Xaa = Any Amino Acid

<220>
<221> SITE
<222> (66)..(77)
<223> Xaa = Any Amino Acid

<400> 1
Xaa Xaa Xaa Xaa Xaa Xaa Xaa Xaa Cys Xaa Cys Leu Ile Val Met Xaa
1 5 10 15

Xaa Xaa Xaa Xaa Xaa Leu Ile Val Met Phe Tyr Xaa Xaa Arg Lys Ser
20 25 30

Glu Gln Xaa Leu Ile Val Met Xaa Xaa Leu Ile Val Met Xaa Xaa Xaa
35 40 45

Xaa Xaa Ser Ala Gly Xaa Xaa Cys Xaa Xaa Xaa Glu Gln Leu Ile Val
50 55 60

Met Xaa Cys Leu Asp
65 70 75 80

Asn

<210> 2
<211> 82
<212> PRT
<213> Artificial Sequence

Handwritten signature
<220>
<223> Description of Artificial Sequence: Synthetic

<220>
<221> SITE
<222> (1)..(9)
<223> Xaa = Any Amino Acid

<220>
<221> SITE
<222> (19)..(24)
<223> Xaa = Any Amino Acid

<220>
<221> SITE
<222> (29)..(32)
<223> Xaa = Any Amino Acid

<220>
<221> SITE
<222> (38)..(39)
<223> Xaa = Any Amino Acid

<220>
<221> SITE
<222> (41)..(43)
<223> Xaa = Any Amino Acid

<220>
<221> SITE
<222> (52)..(53)
<223> Xaa = Any Amino Acid

<220>
<221> SIMILAR
<222> (55)..(58)
<223> Xaa = Any Amino Acid

<220>
<221> SITE

<222> (66)..(67)

<223> Xaa = Any Amino Acid

<220>

<221> SITE

<222> (70)..(74)

<223> Xaa = Any Amino Acid

<220>

<221> SITE

<222> (80)..(81)

<223> Xaa = Any Amino Acid

<400> 2

Xaa Xaa Xaa Xaa Xaa Xaa Xaa Xaa Xaa Cys Cys Leu Ile Val Met Phe
1 5 10 15

Tyr Thr Xaa Xaa Xaa Xaa Xaa Xaa Leu Ile Val Met Xaa Xaa Xaa Xaa
20 25 30

Leu Ile Val Met Phe Xaa Xaa Tyr Xaa Xaa Xaa Gly Ser Thr Asn Gly
35 40 45

Ser Thr Asn Xaa Xaa Cys Xaa Xaa Xaa Xaa Ser Ala Gly Leu Ile Val
50 55 60

Met Xaa Xaa Phe Leu Xaa Xaa Xaa Xaa Arg Lys Thr Met Phe Xaa
65 70 75 80

Xaa Cys

<210> 3

<211> 71

<212> PRT

<213> Artificial Sequence

<220>

<223> Description of Artificial Sequence: Synthetic

<400> 3

Ala Gly Ser Leu Val Ser Tyr Thr Pro Asn Ser Cys Cys Tyr Gly Phe
1 5 10 15

Gln Gln His Pro Pro Pro Val Gln Ile Leu Lys Glu Trp Tyr Pro Thr
20 25 30

SB
Amst

Ser Pro Ala Cys Pro Lys Pro Gly Val Ile Leu Leu Thr Lys Arg Gly
35 40 45

Arg Gln Ile Cys Ala Asp Pro Ser Lys Asn Trp Val Arg Gln Leu Met
50 55 60

Gln Arg Leu Pro Ala Ile Ala
65 70

<210> 4
<211> 74
<212> PRT
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Synthetic

<400> 4
Gly Asp Thr Leu Gly Ala Ser Trp His Arg Pro Asp Lys Cys Cys Leu
1 5 10 15

Gly Tyr Gln Lys Arg Pro Leu Pro Gln Val Leu Leu Ser Ser Trp Tyr
20 25 30

Pro Thr Ser Gln Leu Cys Ser Lys Pro Gly Val Ile Phe Leu Thr Lys
35 40 45

Arg Gly Arg Gln Val Cys Ala Asp Lys Ser Lys Asp Trp Val Lys Lys
50 55 60

Leu Met Gln Gln Leu Pro Val Thr Ala Arg
65 70

<210> 5
<211> 72
<212> PRT
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Synthetic

<400> 5
Ala Gly Ser Leu Val Ser Tyr Thr Pro Asn Ser Cys Cys Tyr Gly Phe
1 5 10 15

Gln Gln His Pro Pro Val Gln Ile Leu Lys Glu Trp Tyr Pro Thr

20

25

30

Ser Pro Ala Cys Ser Lys Pro Gly Val Ile Phe Leu Thr Lys Arg Gly
35 40 45

Arg Gln Val Cys Ala Asp Lys Ser Lys Asp Trp Val Lys Lys Leu Met
50 55 60

Gln Gln Leu Pro Val Thr Ala Arg
65 70

*B
D
J
Amid*
<210> 6

<211> 73

<212> PRT

<213> Artificial Sequence

<220>

<223> Description of Artificial Sequence: Synthetic

<400> 6

Gly Asp Thr Leu Gly Ala Ser Trp His Arg Pro Asp Lys Cys Cys Leu
1 5 10 15

Gly Tyr Gln Lys Arg Pro Leu Pro Gln Val Leu Leu Ser Ser Trp Tyr
20 25 30

Pro Thr Ser Gln Leu Cys Pro Lys Pro Gly Val Ile Leu Leu Thr Lys
35 40 45

Arg Gly Arg Gln Ile Cys Ala Asp Pro Ser Lys Asn Trp Val Arg Gln
50 55 60

Leu Met Gln Arg Leu Pro Ala Ile Ala
65 70

<210> 7

<211> 93

<212> PRT

<213> Artificial Sequence

<220>

<223> Description of Artificial Sequence: Synthetic

<400> 7

Met Asn Ala Lys Val Val Val Val Leu Val Leu Val Leu Thr Ala Leu
1 5 10 15

Cys Leu Ser Asp Gly Lys Pro Val Ser Leu Ser Tyr Arg Cys Pro Cys
 20 25 30

Arg Phe Phe Glu Ser His Val Ala Arg Ala Asn Val Lys His Leu Lys
 35 40 45

Ile Leu Asn Thr Pro Asn Cys Ala Leu Gln Ile Val Ala Arg Leu Lys
 50 55 60

Asn Asn Asn Arg Gln Val Cys Ile Asp Pro Lys Leu Lys Trp Ile Gln
65 70 75 80

Glu Tyr Leu Glu Lys Ala Leu Asn Lys Arg Phe Lys Met
85 90

<210> 8
<211> 67
<212> PRT
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Synthetic

<400> 8
Lys Pro Val Ser Leu Ser Tyr Arg Cys Pro Cys Arg Phe Phe Glu Ser
1 5 10 15

His Val Ala Arg Ala Asn Val Lys His Leu Lys Ile Leu Asn Thr Pro
20 25 30

Asn Cys Ala Leu Gln Ile Val Ala Arg Leu Lys Asn Asn Asn Arg Gln
 35 40 45

Val Cys Ile Asp Pro Lys Leu Lys Trp Ile Gln Glu Tyr Leu Glu Lys
50 55 60

Ala Leu Asn

<210> 9
<211> 91
<212> PRT
<213> Artificial Sequence

<220>

BB
Amato
<223> Description of Artificial Sequence: Synthetic

<400> 9

Met Lys Val Ser Ala Ala Arg Leu Ala Val Ile Leu Ile Ala Thr Ala
1 5 10 15

Leu Cys Ala Pro Ala Ser Ala Ser Pro Tyr Ser Ser Asp Thr Thr Pro
20 25 30

Cys Cys Phe Ala Tyr Ile Ala Arg Pro Leu Pro Arg Ala His Ile Lys
35 40 45

Glu Tyr Phe Tyr Thr Ser Gly Lys Cys Ser Asn Pro Ala Val Val Phe
50 55 60

Val Thr Arg Lys Asn Arg Gln Val Cys Ala Asn Pro Glu Lys Lys Trp
65 70 75 80

Val Arg Glu Tyr Ile Asn Ser Leu Glu Met Ser
85 90

<210> 10

<211> 68

<212> PRT

<213> Artificial Sequence

<220>

<223> Description of Artificial Sequence: Synthetic

<400> 10

Ser Pro Tyr Ser Ser Asp Thr Thr Pro Cys Cys Phe Ala Tyr Ile Ala
1 5 10 15

Arg Pro Leu Pro Arg Ala His Ile Lys Glu Tyr Phe Tyr Thr Ser Gly
20 25 30

Lys Cys Ser Asn Pro Ala Val Val Phe Val Thr Arg Lys Asn Arg Gln
35 40 45

Val Cys Ala Asn Pro Glu Lys Lys Trp Val Arg Glu Tyr Ile Asn Ser
50 55 60

Leu Glu Met Ser
65

<210> 11

<211> 33
<212> PRT
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Synthetic

<400> 11
Lys Pro Val Ser Leu Ser Tyr Arg Cys Pro Cys Arg Phe Phe Glu Ser
1 5 10 15

His Val Ala Arg Ala Asn Val Lys His Leu Lys Ile Leu Asn Thr Pro
20 25 30

Asn

<210> 12
<211> 32
<212> PRT
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Synthetic

<400> 12
Lys Pro Val Ser Leu Ser Tyr Arg Cys Cys Arg Phe Phe Glu Ser His
1 5 10 15

Val Ala Arg Ala Asn Val Lys His Leu Lys Ile Leu Asn Thr Pro Asn
20 25 30

<210> 13
<211> 33
<212> PRT
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Synthetic

<400> 13
Lys Pro Val Ser Leu Ser Tyr Arg Cys Pro Cys Phe Ala Tyr Ile Ala
1 5 10 15

Arg Pro Leu Pro Arg Ala His Ile Lys Glu Tyr Phe Tyr Thr Ser Gly
20 25 30

Lys

BB
<210> 14
<211> 32
<212> PRT
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Synthetic

<400> 14
Lys Pro Val Ser Leu Ser Tyr Arg Cys Cys Phe Ala Tyr Ile Ala Arg
1 5 10 15

Pro Leu Pro Arg Ala His Ile Lys Glu Tyr Phe Tyr Thr Ser Gly Lys
20 25 30

<210> 15
<211> 33
<212> PRT
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Synthetic

<400> 15
Ser Pro Tyr Ser Ser Asp Thr Thr Pro Cys Cys Phe Ala Tyr Ile Ala
1 5 10 15

Arg Pro Leu Pro Arg Ala His Ile Lys Glu Tyr Phe Tyr Thr Ser Gly
20 25 30

Lys

<210> 16
<211> 34

<212> PRT

<213> Artificial Sequence

<220>

<223> Description of Artificial Sequence: Synthetic

<400> 16

Ser Pro Tyr Ser Ser Asp Thr Thr Pro Cys Pro Cys Phe Ala Tyr Ile
1 5 10 15

Ala Arg Pro Leu Pro Arg Ala His Ile Lys Glu Tyr Phe Tyr Thr Ser
20 25 30

Gly Lys

<210> 17

<211> 33

<212> PRT

<213> Artificial Sequence

<220>

<223> Description of Artificial Sequence: Synthetic

<400> 17

Ser Pro Tyr Ser Ser Asp Thr Thr Pro Cys Cys Arg Phe Phe Glu Ser
1 5 10 15

His Val Ala Arg Ala Asn Val Lys His Leu Lys Ile Leu Asn Thr Pro
20 25 30

Asn

<210> 18

<211> 34

<212> PRT

<213> Artificial Sequence

<220>

<223> Description of Artificial Sequence: Synthetic

<400> 18

Ser Pro Tyr Ser Ser Asp Thr Thr Pro Cys Pro Cys Arg Phe Phe Glu
1 5 10 15

Ser His Val Ala Arg Ala Asn Val Lys His Leu Lys Ile Leu Asn Thr
20 25 30

Pro Asn

BB
<210> 19
<211> 34
<212> PRT
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Synthetic

<400> 19
Cys Ala Leu Gln Ile Val Ala Arg Leu Lys Asn Asn Asn Arg Gln Val
1 5 10 15

Cys Ile Asp Pro Lys Leu Lys Trp Ile Gln Glu Tyr Leu Glu Lys Ala
20 25 30

Leu Asn

<210> 20
<211> 35
<212> PRT
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Synthetic

<400> 20
Cys Ala Leu Gln Ile Val Ala Arg Leu Lys Asn Asn Asn Arg Gln Val
1 5 10 15

Cys Ala Asn Pro Glu Lys Lys Trp Val Arg Glu Tyr Ile Asn Ser Leu
20 25 30

Glu Met Ser
35

<210> 21
<211> 34
<212> PRT

<213> Artificial Sequence

<220>

<223> Description of Artificial Sequence: Synthetic

<400> 21

Cys Ser Asn Pro Ala Val Val Phe Val Thr Arg Lys Asn Arg Gln Val
1 5 10 15

Cys Ile Asp Pro Lys Leu Lys Trp Ile Gln Glu Tyr Leu Glu Lys Ala
20 25 30

Leu Asn

<210> 22

<211> 35

<212> PRT

<213> Artificial Sequence

<220>

<223> Description of Artificial Sequence: Synthetic

<400> 22

Cys Ser Asn Pro Ala Val Val Phe Val Thr Arg Lys Asn Arg Gln Val
1 5 10 15

Cys Ala Asn Pro Glu Lys Lys Trp Val Arg Glu Tyr Ile Asn Ser Leu
20 25 30

Glu Met Ser

35

<210> 23

<211> 67

<212> PRT

<213> Artificial Sequence

<220>

<223> Description of Artificial Sequence: Synthetic

<400> 23

Lys Pro Val Ser Leu Ser Tyr Arg Cys Pro Cys Arg Phe Phe Glu Ser
1 5 10 15

His Val Ala Arg Ala Asn Val Lys His Leu Lys Ile Leu Asn Thr Pro

20

25

30

Asn Cys Ala Leu Gln Ile Val Ala Arg Leu Lys Asn Asn Asn Arg Gln
35 40 45

Val Cys Ile Asp Pro Lys Leu Lys Trp Ile Gln Glu Tyr Leu Glu Lys
50 55 60

Ala Leu Asn
65

B
<210> 24
<211> 68
<212> PRT
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Synthetic

<400> 24
Lys Pro Val Ser Leu Ser Tyr Arg Cys Pro Cys Arg Phe Phe Glu Ser
1 5 10 15

His Val Ala Arg Ala Asn Val Lys His Leu Lys Ile Leu Asn Thr Pro
20 25 30

Asn Cys Ala Leu Gln Ile Val Ala Arg Leu Lys Asn Asn Asn Arg Gln
35 40 45

Val Cys Ala Asn Pro Glu Lys Lys Trp Val Arg Glu Tyr Ile Asn Ser
50 55 60

Leu Glu Met Ser
65

<210> 25
<211> 67
<212> PRT
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Synthetic

<400> 25
Lys Pro Val Ser Leu Ser Tyr Arg Cys Pro Cys Arg Phe Phe Glu Ser
1 5 10 15

His Val Ala Arg Ala Asn Val Lys His Leu Lys Ile Leu Asn Thr Pro
20 25 30

Asn Cys Ser Asn Pro Ala Val Val Phe Val Thr Arg Lys Asn Arg Gln
35 40 45

Val Cys Ile Asp Pro Lys Leu Lys Trp Ile Gln Glu Tyr Leu Glu Lys
50 55 60

Ala Leu Asn
65

<210> 26
<211> 68
<212> PRT
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Synthetic

<400> 26
Lys Pro Val Ser Leu Ser Tyr Arg Cys Pro Cys Arg Phe Phe Glu Ser
1 5 10 15

His Val Ala Arg Ala Asn Val Lys His Leu Lys Ile Leu Asn Thr Pro
20 25 30

Asn Cys Ser Asn Pro Ala Val Val Phe Val Thr Arg Lys Asn Arg Gln
35 40 45

Val Cys Ala Asn Pro Glu Lys Lys Trp Val Arg Glu Tyr Ile Asn Ser
50 55 60

Leu Glu Met Ser
65

<210> 27
<211> 66
<212> PRT
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Synthetic

<400> 27

Lys Pro Val Ser Leu Ser Tyr Arg Cys Cys Arg Phe Phe Glu Ser His
1 5 10 15

Val Ala Arg Ala Asn Val Lys His Leu Lys Ile Leu Asn Thr Pro Asn
20 25 30

Cys Ala Leu Gln Ile Val Ala Arg Leu Lys Asn Asn Asn Arg Gln Val
35 40 45

Cys Ile Asp Pro Lys Leu Lys Trp Ile Gln Glu Tyr Leu Glu Lys Ala
50 55 60

Leu Asn
65

<210> 28
<211> 67
<212> PRT
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Synthetic

<400> 28
Lys Pro Val Ser Leu Ser Tyr Arg Cys Cys Arg Phe Phe Glu Ser His
1 5 10 15

Val Ala Arg Ala Asn Val Lys His Leu Lys Ile Leu Asn Thr Pro Asn
20 25 30

Cys Ala Leu Gln Ile Val Ala Arg Leu Lys Asn Asn Asn Arg Gln Val
35 40 45

Cys Ala Asn Pro Glu Lys Lys Trp Val Arg Glu Tyr Ile Asn Ser Leu
50 55 60

Glu Met Ser
65

<210> 29
<211> 66
<212> PRT
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Synthetic

<400> 29

Lys Pro Val Ser Leu Ser Tyr Arg Cys Cys Arg Phe Phe Glu Ser His
1 5 10 15

Val Ala Arg Ala Asn Val Lys His Leu Lys Ile Leu Asn Thr Pro Cys
20 25 30

Asn Ser Asn Pro Ala Val Val Phe Val Thr Arg Lys Asn Arg Gln Val
35 40 45

Cys Ile Asp Pro Lys Leu Lys Trp Ile Gln Glu Tyr Leu Glu Lys Ala
50 55 60

Leu Asn

65

<210> 30

<211> 67

<212> PRT

<213> Artificial Sequence

<220>

<223> Description of Artificial Sequence: Synthetic

<400> 30

Lys Pro Val Ser Leu Ser Tyr Arg Cys Cys Arg Phe Phe Glu Ser His
1 5 10 15

Val Ala Arg Ala Asn Val Lys His Leu Lys Ile Leu Asn Thr Pro Asn
20 25 30

Cys Ser Asn Pro Ala Val Val Phe Val Thr Arg Lys Asn Arg Gln Val
35 40 45

Cys Ala Asn Pro Glu Lys Lys Trp Val Arg Glu Tyr Ile Asn Ser Leu
50 55 60

Glu Met Ser

65

<210> 31

<211> 67

<212> PRT

<213> Artificial Sequence

<220>

<223> Description of Artificial Sequence: Synthetic

<400> 31

Lys Pro Val Ser Leu Ser Tyr Arg Cys Pro Cys Phe Ala Tyr Ile Ala
1 5 10 15

Arg Pro Leu Pro Arg Ala His Ile Lys Glu Tyr Phe Tyr Thr Ser Gly
20 25 30

Lys Cys Ala Leu Gln Ile Val Ala Arg Leu Lys Asn Asn Asn Arg Gln
35 40 45

Val Cys Ile Asp Pro Lys Leu Lys Trp Ile Gln Glu Tyr Leu Glu Lys
50 55 60

Ala Leu Asn

65

<210> 32

<211> 68

<212> PRT

<213> Artificial Sequence

<220>

<223> Description of Artificial Sequence: Synthetic

<400> 32

Lys Pro Val Ser Leu Ser Tyr Arg Cys Pro Cys Phe Ala Tyr Ile Ala
1 5 10 15

Arg Pro Leu Pro Arg Ala His Ile Lys Glu Tyr Phe Tyr Thr Ser Gly
20 25 30

Lys Cys Ala Leu Gln Ile Val Ala Arg Leu Lys Asn Asn Asn Arg Gln
35 40 45

Val Cys Ala Asn Pro Glu Lys Lys Trp Val Arg Glu Tyr Ile Asn Ser
50 55 60

Leu Glu Met Ser

65

<210> 33

<211> 67

<212> PRT

<213> Artificial Sequence

<220>

<223> Description of Artificial Sequence: Synthetic

<400> 33

Lys Pro Val Ser Leu Ser Tyr Arg Cys Pro Cys Phe Ala Tyr Ile Ala
1 5 10 15

Arg Pro Leu Pro Arg Ala His Ile Lys Glu Tyr Phe Tyr Thr Ser Gly
20 25 30

Lys Cys Ser Asn Pro Ala Val Val Phe Val Thr Arg Lys Asn Arg Gln
35 40 45

Val Cys Ile Asp Pro Lys Leu Lys Trp Ile Gln Glu Tyr Leu Glu Lys
50 55 60

Ala Leu Asn

65

<210> 34

<211> 68

<212> PRT

<213> Artificial Sequence

<220>

<223> Description of Artificial Sequence: Synthetic

<400> 34

Lys Pro Val Ser Leu Ser Tyr Arg Cys Pro Cys Phe Ala Tyr Ile Ala
1 5 10 15

Arg Pro Leu Pro Arg Ala His Ile Lys Glu Tyr Phe Tyr Thr Ser Gly
20 25 30

Lys Cys Ser Asn Pro Ala Val Val Phe Val Thr Arg Lys Asn Arg Gln
35 40 45

Val Cys Ala Asn Pro Glu Lys Lys Trp Val Arg Glu Tyr Ile Asn Ser
50 55 60

Leu Glu Met Ser

65

<210> 35

B
<211> 66
<212> PRT
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Synthetic

<400> 35
Lys Pro Val Ser Leu Ser Tyr Arg Cys Cys Phe Ala Tyr Ile Ala Arg
1 5 10 15

Pro Leu Pro Arg Ala His Ile Lys Glu Tyr Phe Tyr Thr Ser Gly Lys
20 25 30

Cys Ala Leu Gln Ile Val Ala Arg Leu Lys Asn Asn Asn Arg Gln Val
35 40 45

Cys Ile Asp Pro Lys Leu Lys Trp Ile Gln Glu Tyr Leu Glu Lys Ala
50 55 60

Leu Asn
65

<210> 36
<211> 67
<212> PRT
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Synthetic

<400> 36
Lys Pro Val Ser Leu Ser Tyr Arg Cys Cys Phe Ala Tyr Ile Ala Arg
1 5 10 15

Pro Leu Pro Arg Ala His Ile Lys Glu Tyr Phe Tyr Thr Ser Gly Lys
20 25 30

Cys Ala Leu Gln Ile Val Ala Arg Leu Lys Asn Asn Asn Arg Gln Val
35 40 45

Cys Ala Asn Pro Glu Lys Lys Trp Val Arg Glu Tyr Ile Asn Ser Leu
50 55 60

Glu Met Ser
65

<210> 37
<211> 66
<212> PRT
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Synthetic

<400> 37
Lys Pro Val Ser Leu Ser Tyr Arg Cys Cys Phe Ala Tyr Ile Ala Arg
1 5 10 15

Pro Leu Pro Arg Ala His Ile Lys Glu Tyr Phe Tyr Thr Ser Gly Lys
20 25 30

Cys Ser Asn Pro Ala Val Val Phe Val Thr Arg Lys Asn Arg Gln Val
35 40 45

Cys Ile Asp Pro Lys Leu Lys Trp Ile Gln Glu Tyr Leu Glu Lys Ala
50 55 60

Leu Asn
65

<210> 38
<211> 67
<212> PRT
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Synthetic

<400> 38
Lys Pro Val Ser Leu Ser Tyr Arg Cys Cys Phe Ala Tyr Ile Ala Arg
1 5 10 15

Pro Leu Pro Arg Ala His Ile Lys Glu Tyr Phe Tyr Thr Ser Gly Lys
20 25 30

Cys Ser Asn Pro Ala Val Val Phe Val Thr Arg Lys Asn Arg Gln Val
35 40 45

Cys Ala Asn Pro Glu Lys Lys Trp Val Arg Glu Tyr Ile Asn Ser Leu
50 55 60

Glu Met Ser

<210> 39
<211> 67
<212> PRT
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Synthetic

<400> 39
Ser Pro Tyr Ser Ser Asp Thr Thr Pro Cys Cys Phe Ala Tyr Ile Ala
1 5 10 15

Arg Pro Leu Pro Arg Ala His Ile Lys Glu Tyr Phe Tyr Thr Ser Gly
20 25 30

Lys Cys Ala Leu Gln Ile Val Ala Arg Leu Lys Asn Asn Asn Arg Gln
35 40 45

Val Cys Ile Asp Pro Lys Leu Lys Trp Ile Gln Glu Tyr Leu Glu Lys
50 55 60

Ala Leu Asn
65

<210> 40
<211> 68
<212> PRT
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Synthetic

<400> 40
Ser Pro Tyr Ser Ser Asp Thr Thr Pro Cys Cys Phe Ala Tyr Ile Ala
1 5 10 15

Arg Pro Leu Pro Arg Ala His Ile Lys Glu Tyr Phe Tyr Thr Ser Gly
20 25 30

Lys Cys Ala Leu Gln Ile Val Ala Arg Leu Lys Asn Asn Asn Arg Gln
35 40 45

Val Cys Ala Asn Pro Glu Lys Lys Trp Val Arg Glu Tyr Ile Asn Ser
50 55 60

Leu Glu Met Ser

65

<210> 41

<211> 67

<212> PRT

<213> Artificial Sequence

<220>

<223> Description of Artificial Sequence: Synthetic

<400> 41

Ser Pro Tyr Ser Ser Asp Thr Thr Pro Cys Cys Phe Ala Tyr Ile Ala
1 5 10 15

Arg Pro Leu Pro Arg Ala His Ile Lys Glu Tyr Phe Tyr Thr Ser Gly
20 25 30

Lys Cys Ser Asn Pro Ala Val Val Phe Val Thr Arg Lys Asn Arg Gln
35 40 45

Val Cys Ile Asp Pro Lys Leu Lys Trp Ile Gln Glu Tyr Leu Glu Lys
50 55 60

Ala Leu Asn

65

<210> 42

<211> 68

<212> PRT

<213> Artificial Sequence

<220>

<223> Description of Artificial Sequence: Synthetic

<400> 42

Ser Pro Tyr Ser Ser Asp Thr Thr Pro Cys Cys Phe Ala Tyr Ile Ala
1 5 10 15

Arg Pro Leu Pro Arg Ala His Ile Lys Glu Tyr Phe Tyr Thr Ser Gly
20 25 30

Lys Cys Ser Asn Pro Ala Val Val Phe Val Thr Arg Lys Asn Arg Gln
35 40 45

Val Cys Ala Asn Pro Glu Lys Lys Trp Val Arg Glu Tyr Ile Asn Ser
50 55 60

Leu Glu Met Ser
65

AB
<210> 43
<211> 68
<212> PRT
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Synthetic

<400> 43
Ser Pro Tyr Ser Ser Asp Thr Thr Pro Cys Pro Cys Phe Ala Tyr Ile
1 5 10 15

Ala Arg Pro Leu Pro Arg Ala His Ile Lys Glu Tyr Phe Tyr Thr Ser
20 25 30

Gly Lys Cys Ala Leu Gln Ile Val Ala Arg Leu Lys Asn Asn Asn Arg
35 40 45

Gln Val Cys Ile Asp Pro Lys Leu Lys Trp Ile Gln Glu Tyr Leu Glu
50 55 60

Lys Ala Leu Asn
65

<210> 44
<211> 69
<212> PRT
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Synthetic

<400> 44
Ser Pro Tyr Ser Ser Asp Thr Thr Pro Cys Pro Cys Phe Ala Tyr Ile
1 5 10 15

Ala Arg Pro Leu Pro Arg Ala His Ile Lys Glu Tyr Phe Tyr Thr Ser
20 25 30

Gly Lys Cys Ala Leu Gln Ile Val Ala Arg Leu Lys Asn Asn Asn Arg

35

40

45

Gln Val Cys Ala Asn Pro Glu Lys Lys Trp Val Arg Glu Tyr Ile Asn
50 55 60

Ser Leu Glu Met Ser
65

BR
<210> 45
<211> 68
<212> PRT
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Synthetic

<400> 45
Ser Pro Tyr Ser Ser Asp Thr Thr Pro Cys Pro Cys Phe Ala Tyr Ile
1 5 10 15

Ala Arg Pro Leu Pro Arg Ala His Ile Lys Glu Tyr Phe Tyr Thr Ser
20 25 30

Gly Lys Cys Ser Asn Pro Ala Val Val Phe Val Thr Arg Lys Asn Arg
35 40 45

Gln Val Cys Ile Asp Pro Lys Leu Lys Trp Ile Gln Glu Tyr Leu Glu
50 55 60

Lys Ala Leu Asn
65

<210> 46
<211> 69
<212> PRT
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Synthetic

<400> 46
Ser Pro Tyr Ser Ser Asp Thr Thr Pro Cys Pro Cys Phe Ala Tyr Ile
1 5 10 15

Ala Arg Pro Leu Pro Arg Ala His Ile Lys Glu Tyr Phe Tyr Thr Ser
20 25 30

Gly Lys Cys Ser Asn Pro Ala Val Val Phe Val Thr Arg Lys Asn Arg
35 40 45

Gln Val Cys Ala Asn Pro Glu Lys Lys Trp Val Arg Glu Tyr Ile Asn
50 55 60

Ser Leu Glu Met Ser
65

(B)
<210> 47
<211> 67
<212> PRT
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Synthetic

<400> 47
Ser Pro Tyr Ser Ser Asp Thr Thr Pro Cys Cys Arg Phe Phe Glu Ser
1 5 10 15

His Val Ala Arg Ala Asn Val Lys His Leu Lys Ile Leu Asn Thr Pro
20 25 30

Asn Cys Ala Leu Gln Ile Val Ala Arg Leu Lys Asn Asn Asn Arg Gln
35 40 45

Val Cys Ile Asp Pro Lys Leu Lys Trp Ile Gln Glu Tyr Leu Glu Lys
50 55 60

Ala Leu Asn
65

<210> 48
<211> 68
<212> PRT
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Synthetic

<400> 48
Ser Pro Tyr Ser Ser Asp Thr Thr Pro Cys Cys Arg Phe Phe Glu Ser
1 5 10 15

His Val Ala Arg Ala Asn Val Lys His Leu Lys Ile Leu Asn Thr Pro
20 25 30

Asn Cys Ala Leu Gln Ile Val Ala Arg Leu Lys Asn Asn Asn Arg Gln
35 40 45

Val Cys Ala Asn Pro Glu Lys Lys Trp Val Arg Glu Tyr Ile Asn Ser
50 55 60

Leu Glu Met Ser
65

GB
<210> 49

<211> 67

<212> PRT

<213> Artificial Sequence

<220>

<223> Description of Artificial Sequence: Synthetic

<400> 49

Ser Pro Tyr Ser Ser Asp Thr Thr Pro Cys Cys Arg Phe Phe Glu Ser
1 5 10 15

His Val Ala Arg Ala Asn Val Lys His Leu Lys Ile Leu Asn Thr Pro
20 25 30

Asn Cys Ser Asn Pro Ala Val Val Phe Val Thr Arg Lys Asn Arg Gln
35 40 45

Val Cys Ile Asp Pro Lys Leu Lys Trp Ile Gln Glu Tyr Leu Glu Lys
50 55 60

Ala Leu Asn
65

<210> 50

<211> 68

<212> PRT

<213> Artificial Sequence

<220>

<223> Description of Artificial Sequence: Synthetic

<400> 50

Ser Pro Tyr Ser Ser Asp Thr Thr Pro Cys Cys Arg Phe Phe Glu Ser

1

5

10

15

His Val Ala Arg Ala Asn Val Lys His Leu Lys Ile Leu Asn Thr Pro
20 25 30

Asn Cys Ser Asn Pro Ala Val Val Phe Val Thr Arg Lys Asn Arg Gln
35 40 45

Val Cys Ala Asn Pro Glu Lys Lys Trp Val Arg Glu Tyr Ile Asn Ser
50 55 60

Leu Glu Met Ser
65

<210> 51

<211> 68

<212> PRT

<213> Artificial Sequence

<220>

<223> Description of Artificial Sequence: Synthetic

<400> 51

Ser Pro Tyr Ser Ser Asp Thr Thr Pro Cys Pro Cys Arg Phe Phe Glu
1 5 10 15

Ser His Val Ala Arg Ala Asn Val Lys His Leu Lys Ile Leu Asn Thr
20 25 30

Pro Asn Cys Ala Leu Gln Ile Val Ala Arg Leu Lys Asn Asn Asn Arg
35 40 45

Gln Val Cys Ile Asp Pro Lys Leu Lys Trp Ile Gln Glu Tyr Leu Glu
50 55 60

Lys Ala Leu Asn
65

<210> 52

<211> 69

<212> PRT

<213> Artificial Sequence

<220>

<223> Description of Artificial Sequence: Synthetic

<400> 52

Ser Pro Tyr Ser Ser Asp Thr Thr Pro Cys Pro Cys Arg Phe Phe Glu
1 5 10 15

Ser His Val Ala Arg Ala Asn Val Lys His Leu Lys Ile Leu Asn Thr
20 25 30

Pro Asn Cys Ala Leu Gln Ile Val Ala Arg Leu Lys Asn Asn Asn Arg
35 40 45

Gln Val Cys Ala Asn Pro Glu Lys Lys Trp Val Arg Glu Tyr Ile Asn
50 55 60

Ser Leu Glu Met Ser
65

<210> 53

<211> 68

<212> PRT

<213> Artificial Sequence

<220>

<223> Description of Artificial Sequence: Synthetic

<400> 53

Ser Pro Tyr Ser Ser Asp Thr Thr Pro Cys Pro Cys Arg Phe Phe Glu
1 5 10 15

Ser His Val Ala Arg Ala Asn Val Lys His Leu Lys Ile Leu Asn Thr
20 25 30

Pro Asn Cys Ser Asn Pro Ala Val Val Phe Val Thr Arg Lys Asn Arg
35 40 45

Gln Val Cys Ile Asp Pro Lys Leu Lys Trp Ile Gln Glu Tyr Leu Glu
50 55 60

Lys Ala Leu Asn
65

<210> 54

<211> 69

<212> PRT

<213> Artificial Sequence

<220>

<223> Description of Artificial Sequence: Synthetic

<400> 54

Ser Pro Tyr Ser Ser Asp Thr Thr Pro Cys Pro Cys Arg Phe Phe Glu
1 5 10 15

Ser His Val Ala Arg Ala Asn Val Lys His Leu Lys Ile Leu Asn Thr
20 25 30

Pro Asn Cys Ser Asn Pro Ala Val Val Phe Val Thr Arg Lys Asn Arg
35 40 45

Gln Val Cys Ala Asn Pro Glu Lys Lys Trp Val Arg Glu Tyr Ile Asn
50 55 60

Ser Leu Glu Met Ser
65